AMENDMENTS TO THE CLAIMS

1. (Currently amended) A liquid crystal display apparatus that corrects optical response characteristics of a liquid crystal display panel, by subjecting image data supplied to the liquid crystal display panel to enhancing conversion at least in accordance with image data of a directly previous vertical period and image data of a current vertical period,

the liquid crystal display apparatus comprising:

signal type detection section for detecting whether a signal type of input image data is a progressive signal or an interlace signal;

I/P conversion section for converting an interlace signal to image data that is a quasi-progressive signal, if the input image data is an interlace signal; and

enhancing conversion section for subjecting the image data to [[the]]overshoot enhancing conversion, in a direction of gray level transition,

when the enhancing conversion section subjects the quasi-progressive signal to the overshoot enhancing conversion in accordance with a result of detection performed by the signal type detection section, the enhancing conversion section performs such enhancing conversion that when the input image data is an interlace signal, the degree of the enhancing conversion of the image data is lower than when the input image data is a progressive signalin accordance with a result of detection by the signal type detection section, a degree of the enhancing conversion of the image data by the enhancing conversion section being varied.

2. (Withdrawn) The liquid crystal display apparatus as defined in claim 1, further comprising a table memory that stores an enhancing conversion parameter specified by the image data of the current vertical period and the image data of the directly previous vertical period,

the enhancing conversion means including:

an operation section that performs an operation on the image data so as to enhance the image data, using the enhancing conversion parameter; and

a multiplying section that multiplies output data of the operation section by a coefficient corresponding to the result of the detection by the signal type detection means.

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3. (Withdrawn) The liquid crystal display apparatus as defined in claim 2, wherein, the coefficient in a case where the input image data is an interlace signal is smaller than the coefficient in a case where the input image data is a progressive signal.

4. (Original) The liquid crystal display apparatus as defined in claim 1, further comprising:

a first table memory that stores an enhancing conversion parameter specified by the image data of the current vertical period and the image data of the directly previous vertical period, the first table memory being referred to when the input image data is a progressive signal; and

a second table memory that stores an enhancing conversion parameter specified by the image data of the current vertical period and the image data of the directly previous vertical period, the second table memory being referred to when the input image data is an interlace signal,

the enhancing conversion means including an operation section that performs, using the enhancing conversion parameter read out from the first or second table memory in accordance with the result of the detection by the signal type detection means, an operation on the image data so as to enhance the image data.

5. (Previously Presented) The liquid crystal display apparatus as defined in claim 4, wherein, the enhancing conversion parameter in a case where the input image data is a progressive signal is larger than the enhancing conversion parameter in a case where the input image data is an interlace signal.

6. (Withdrawn) The liquid crystal display apparatus as defined in claim 1, further comprising:

temperature detection means for detecting a temperature in the liquid crystal display apparatus,

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the enhancing conversion means varying the degree of the enhancing conversion of the image data, in accordance with a result of detection by the temperature detection means.

7. (Withdrawn) The liquid crystal display apparatus as defined in claim 6, further comprising a table memory that stores an enhancing conversion parameter specified by the image data of the directly previous vertical period and the image data of the current vertical period,

the enhancing conversion means including:

an operation section that performs an operation on the image data so as to enhance the image data, using the enhancing conversion parameter; and

a multiplying section that multiplies output data of the operation section by a coefficient corresponding to the result of the detection by the signal type detection means and the result of the detection by the temperature detection means.

8. (Withdrawn) The liquid crystal display apparatus as defined in claim 6, further comprising:

a first table memory that stores an enhancing conversion parameter specified by the image data of the current vertical period and the image data of the directly previous vertical period, the first table memory being referred to when the input image data is a progressive signal; and

a second table memory that stores an enhancing conversion parameter specified by the image data of the current vertical period and the image data of the directly previous vertical period, the second table memory being referred to when the input image data is an interlace signal,

the enhancing conversion means including:

an operation section that performs, using the enhancing conversion parameter read out from the first or second table memory in accordance with the result of the detection by the signal type detection means, an operation on the image data so as to enhance the image data; and

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a multiplying section that multiplies output data of the operation section by a coefficient corresponding to the result of the detection by the temperature detection means.

9. (Withdrawn) The liquid crystal display apparatus as defined in claim 6, further comprising:

first table memories that store enhancing conversion parameters that correspond to respective temperatures in the liquid crystal display apparatus and are specified by the image data of the current vertical period and the image data of the directly previous vertical period, the first table memories being referred to when the input image data is a progressive signal; and

second table memories that store enhancing conversion parameters that correspond to respective temperatures in the liquid crystal display apparatus and are specified by the image data of the current vertical period and the image data of the directly previous vertical period, the second table memories being referred to when the input image data is an interlace signal,

the enhancing conversion means including an operation section that performs, using the enhancing conversion parameter read out from the first or second table memory in accordance with the result of the detection by the signal type detection means and the result of the detection by the temperature detection means, an operation on the image data so as to enhance the image data.

10. (Withdrawn) The liquid crystal display apparatus as defined in claim 6, further comprising a table memory that stores enhancing conversion parameters that correspond to respective temperatures in the liquid crystal display apparatus and are specified by the image data of the current vertical period and the image data of the directly previous vertical period,

the enhancing conversion means including an operation section that performs, using the enhancing conversion parameter read out from the table memory, an operation on the image data so as to enhance the image data, in accordance with a result of comparison between (i) a switching temperature determined by the result of the detection by the signal type detection means and (ii) the result of the detection by the temperature detection means.

11. (Withdrawn) The liquid crystal display apparatus as defined in claim 10, further comprising:

a control section that controls switching and selection of the enhancing conversion parameters,

the control means including:

an operation section that performs, on temperature data detected by the temperature detection means, a predetermined operation corresponding to each signal type of the input image data;

a threshold discriminating section that compares the temperature data, which has been subjected to the operation by the operation section, with predetermined threshold temperature data; and

a control signal output section that generates a switching control signal with which the enhancing conversion parameters are switched and controlled, in accordance with a result of detection by the threshold discriminating section.

12. (Withdrawn) The liquid crystal display apparatus as defined in claim 10, further comprising

control means that controls switching and selection of the enhancing conversion parameters,

the control means including:

a threshold discriminating section that compares the temperature data detected by the temperature detection means with predetermined temperature data corresponding to each signal type of the input image data; and

a control signal output section that generates a switching control signal with which the enhancing conversion parameters are switched and controlled in accordance with a result of detection by the threshold discriminating section.

13. (Currently Amended) A liquid crystal display control method for correcting optical response characteristics of a liquid crystal display panel, by subjecting image data supplied to the

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liquid crystal display panel to enhancing conversion at least in accordance with image data of a directly previous vertical period and image data of a current vertical period,

the method comprising the steps of:

(i) detecting whether a signal type of input image data is a progressive signal or an interlace signal;

(ii) converting the interlace signal to image data that is a quasi-progressive signal, if the input image data is an interlace signal; and

(iii) subjecting the image data to [[the]]overshoot enhancing conversion, in a direction of gray level transition,

when subjecting the quasi-progressive signal to the overshoot enhancing conversion in accordance with a result of the detecting, performing enhancing conversion such that when the input image data is an interlace signal, the degree of the enhancing conversion of the image data is lower than when the input image data is a progressive signal

~~in accordance with a result of detection of the signal type, a degree of the enhancing conversion of the image data being varied.~~

14. (Withdrawn) The liquid crystal display control method as defined in claim 13, further comprising the steps of:

(iv) referring to a table memory that stores an enhancing conversion parameter specified by the image data of the directly previous vertical period and the image data of the current vertical period;

(v) performing an operation on the image data so as to enhance the image data, using the enhancing conversion parameter; and

(vi) multiplying output data as a result of the step (v) by a coefficient corresponding to the signal type detected in the step (i).

15. (Original) The liquid crystal display control method as defined in claim 13, further comprising the steps of:

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(iv) referring to a table memory that stores an enhancing conversion parameter specified by the image data of the directly previous vertical period and the image data of the current vertical period, the table memory being referred to in a case where the input image data is a progressive signal;

(v) referring to a table memory that stores an enhancing conversion parameter specified by the image data of the directly previous vertical period and the image data of the current vertical period, the table memory being referred to in a case where the input image data is the interlace signal; and

performing an operation on the image data so as to enhance the image data, using the enhancing conversion parameter read out from the table memory in accordance with the signal type detected in the step (i).

16. (Withdrawn) The liquid crystal display control method as defined in claim 13, further comprising the steps of:

(iv) detecting a temperature in an apparatus; and

(v) varying the degree of the enhancing conversion on the image data, in accordance with the temperature detected in the step (iv).

17. (Withdrawn) The liquid crystal display control method as defined in claim 16, further comprising the steps of:

(vi) referring to a table memory that stores an enhancing conversion parameter specified by the image data of the directly previous vertical period and the image data of the current vertical period;

(vii) performing an operation on the image data so as to enhance the image data, using the enhancing conversion parameter; and

(viii) multiplying output data as a result of the step (vii) by a coefficient corresponding to the signal type detected in the step (i) and the temperature detected in the step (iv).

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18. (Withdrawn) The liquid crystal display control method as defined in claim 16, further comprising the steps of:

(vi) referring to a first table memory that stores an enhancing conversion parameter specified by the image data of the directly previous vertical period and the image data of the current vertical period, the first table memory being referred to in a case where the input image data is a progressive signal;

(vii) referring to a second table memory that stores an enhancing conversion parameter specified by the image data of the directly previous vertical period and the image data of the current vertical period, the second table memory being referred to in a case where the input image data is an interlace signal;

(viii) performing an operation on the image data so as to enhance the image data, using the enhancing conversion parameter read out from the first or second table memory in accordance with the signal type detected in the step (i); and

(ix) multiplying output data as a result of the step (viii) by a coefficient corresponding to each temperature detected in the step (iv).

19. (Withdrawn) The liquid crystal display control method as defined in claim 16, further comprising the steps of:

(vi) referring to first table memories that store enhancing conversion parameters that correspond to respective temperatures in the apparatus and are specified by the image data of the current vertical period and the image data of the directly previous vertical period, the first table memories being referred to in a case where the input image data is a progressive signal;

(vii) referring to second table memories that stores enhancing conversion parameters that correspond to respective temperatures in the apparatus and are specified by the image data of the current vertical period and the image data of the directly previous vertical period, the second table memories being referred to in a case where the input image data is an interlace signal; and

(viii) in accordance with the signal type detected in the step (i) and the temperature detected in the step (iv), performing an operation on the image data so as to enhance the image data, using the enhancing conversion parameter read out from the first or second table memory.

20. (Withdrawn) The liquid crystal display control method as defined in claim 16, further comprising the steps of:

(vi) referring to table memories that store enhancing conversion parameters that correspond to respective temperatures in the apparatus and are specified by the image data of the directly previous vertical period and the image data of the current vertical period; and

(vii) performing an operation on the image data so as to enhance the image data, using the enhancing conversion parameter read out from the table memory with reference to a result of comparison between a switching temperature determined by the signal type detected in the step (i) and the temperature detected in the step (iv).

21. (Withdrawn) The liquid crystal display control method as defined in claim 20, further comprising the steps of:

(viii) performing, on temperature data corresponding to the temperature detected in the step (iv), a predetermined operation corresponding to each signal type of the input image data;

(ix) comparing the temperature after being subjected to the predetermined operation with predetermined threshold temperature data; and

(x) in accordance with a comparison in the step (ix), generating a switching control signal for switching and controlling the enhancing conversion parameters.

22. (Withdrawn) The liquid crystal display control method as defined in claim 20, further comprising the steps of:

(viii) comparing temperature data corresponding to the temperature detected in the step (iv) with predetermined threshold temperature data corresponding to each signal type of the input image data; and

(ix) in accordance with a comparison in the step (viii), generating a switching control signal for switching and controlling the enhancing conversion parameters.

23. (Canceled).

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24. (Currently Amended) A recording medium storing a program for a computer controlling a liquid crystal display apparatus including I/P conversion section that converts an interlace signal to image data of a quasi-progressive signal, in a case where input image data is an interlace signal, the liquid crystal display apparatus correcting optical response characteristics of a liquid crystal display panel by performing [[an]] overshoot enhancing conversion of the image data in a direction of gray level transition, in accordance with image data of a directly previous vertical period and image data of a current vertical period, in such a manner as to causing the liquid crystal panel to have a transmittance specified by the image data, within a predetermined period of time,

the program causing the computer to perform a step of varying a degree of the enhancing conversion of the image data when subjecting the quasi-progressive signal to the overshoot enhancing conversion, in accordance with a result of detection of whether a signal type of input image data is a progressive signal or an interlace signal, performing enhancing conversion such that when the input image data is an interlace signal, the degree of the enhancing conversion of the image data is lower than when the input image data is a progressive signal.

25. (Withdrawn) The liquid crystal display apparatus as defined in claim 1, further comprising:

temperature detection section for detecting a temperature in the liquid crystal display apparatus, and

table memories each storing an enhancing conversion parameter specified by the image data of the current vertical period and the image data of the directly previous vertical period,

at least one of the table memories being referable irrespective of the signal type, and

the enhancing conversion section subjecting the image data to the enhancing conversion, referring to one of the table memories which is selected in accordance with a result of detection by the signal type detection section and a result of detection by the temperature detection section, and using the enhancing conversion parameter read out from said selected one of the table memories.

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26. (Withdrawn) The liquid crystal display control method as defined in claim 13, further comprising the step of:

(iv) detecting a temperature in a liquid crystal display apparatus,

the step (iii) being performed for each of temperatures in the liquid crystal display apparatus, and in the step (iii), one of table memories, each storing an enhancing conversion parameter specified by the image data of the current vertical period and the image data of the directly previous vertical period and at least one of which being referable irrespective of the signal type, being selected in accordance with a result of detection by the signal type detection section and a result of detection by the temperature detection section, and the enhancing conversion being carried out with respect to the image data, using the enhancing conversion parameter read out from said selected one of the table memories.

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